

LOGIC CIRCUIT DEVICES

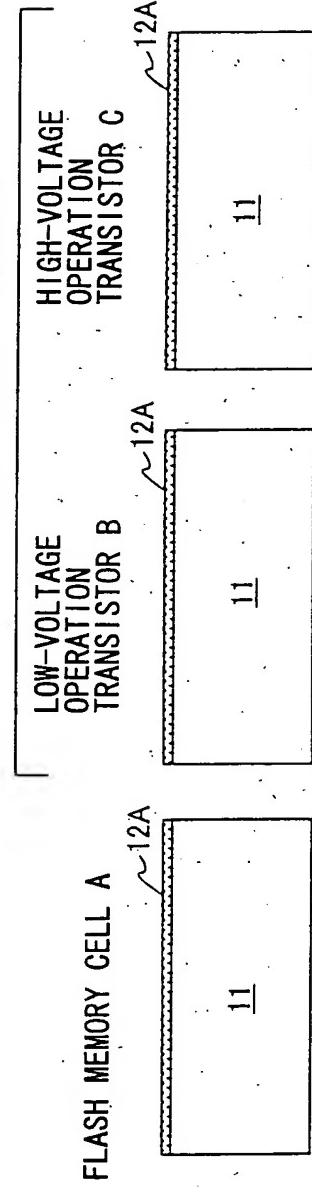


FIG. 1A
PRIOR ART

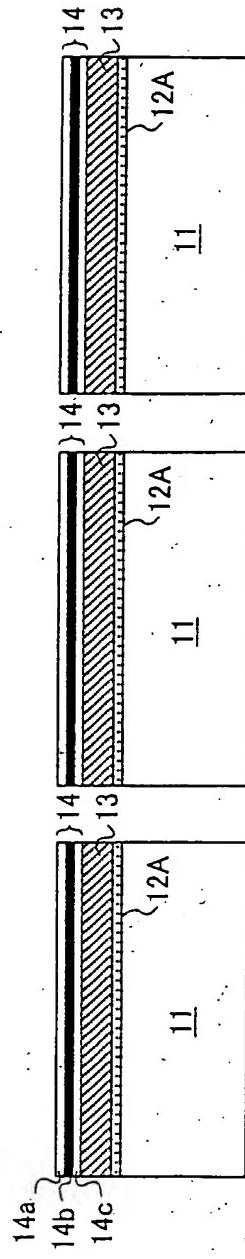


FIG. 1B
PRIOR ART

LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A

LOW-VOLTAGE
OPERATION
TRANSISTOR B

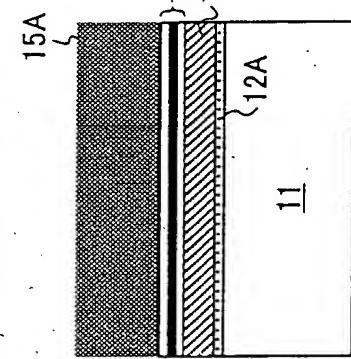


FIG. 1C
PRIOR ART

HIGH-VOLTAGE
OPERATION
TRANSISTOR C

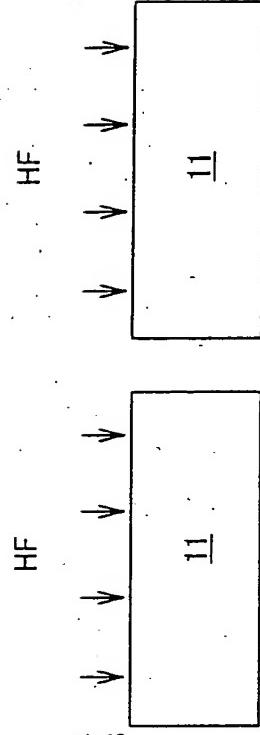
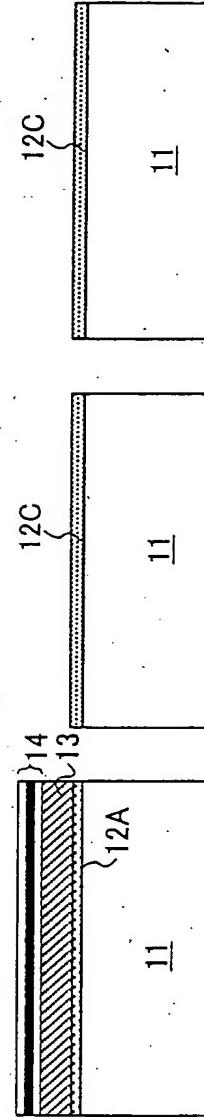


FIG. 1D
PRIOR ART



LOGIC CIRCUIT DEVICES

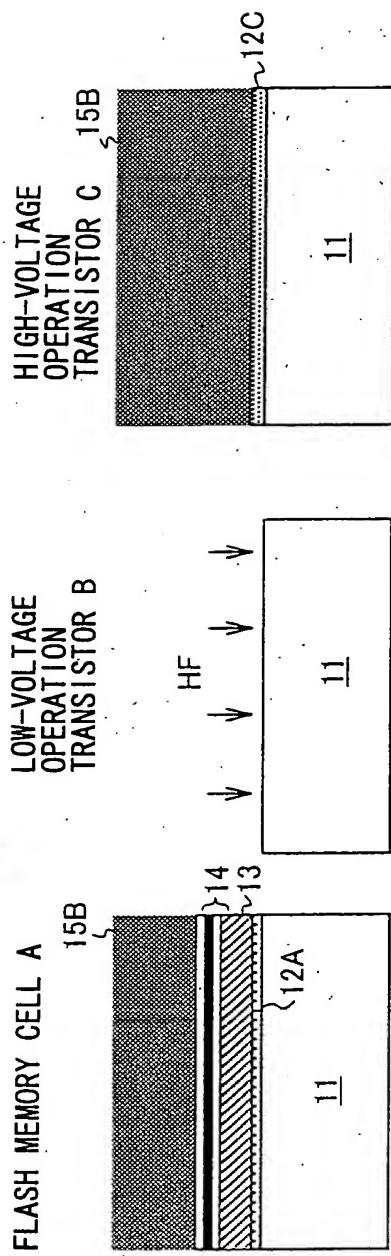


FIG. 1E
PRIOR ART

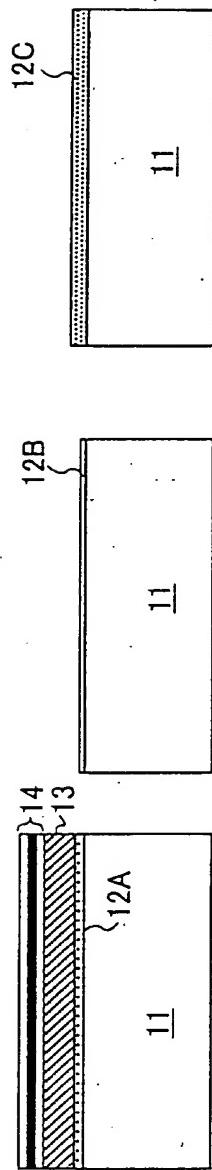


FIG. 1F
PRIOR ART

LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A

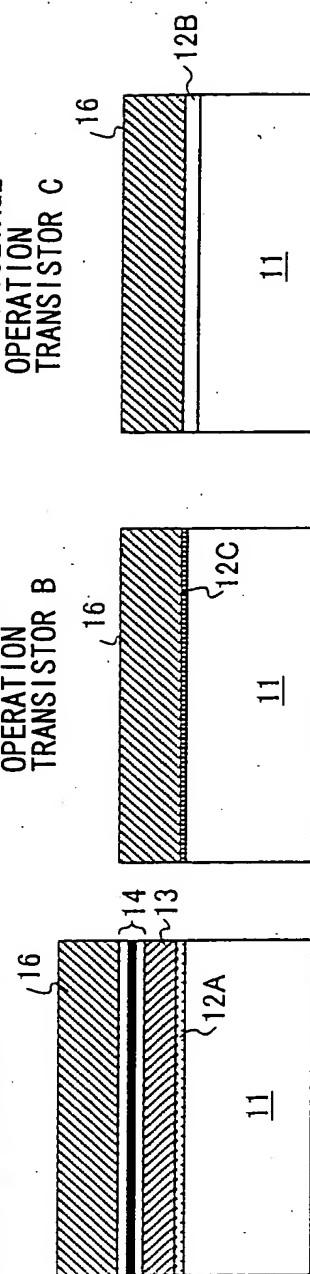
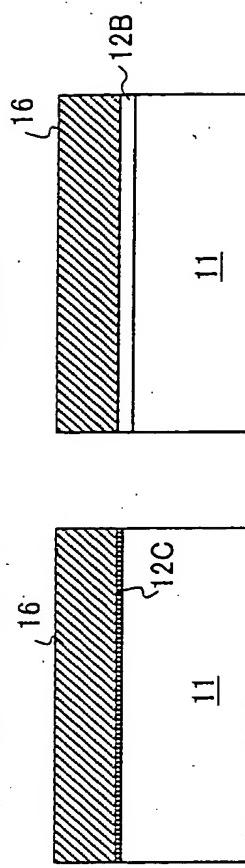


FIG. 1G
PRIOR ART

LOW-VOLTAGE OPERATION TRANSISTOR B



HIGH-VOLTAGE OPERATION TRANSISTOR C

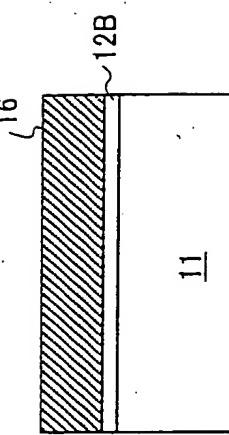
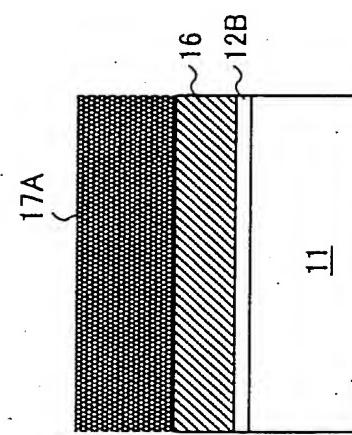
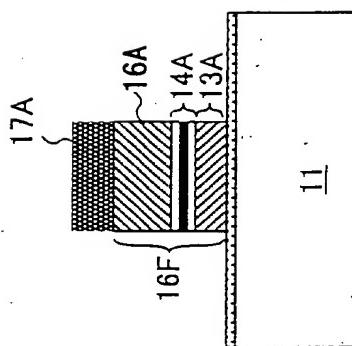
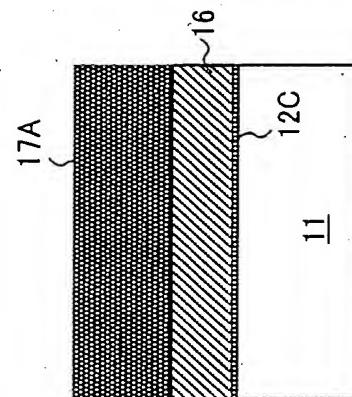


FIG. 1H
PRIOR ART



LOGIC CIRCUIT DEVICES

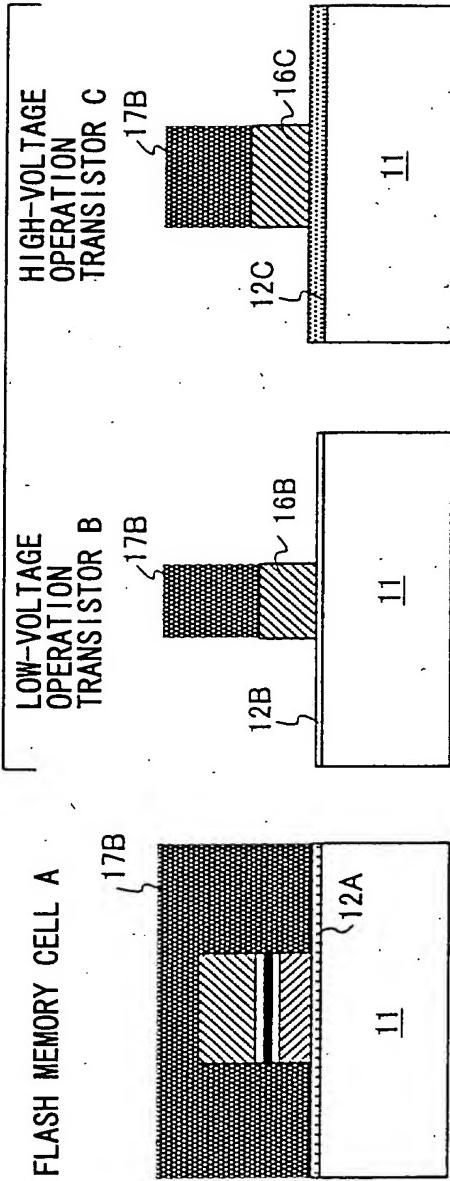


FIG. 1
PRIOR ART

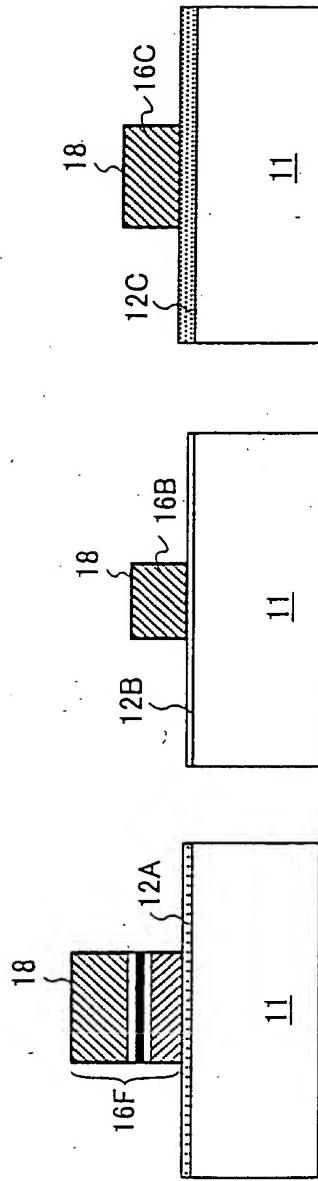


FIG. 1J
PRIOR ART

LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A

P+ OR As+

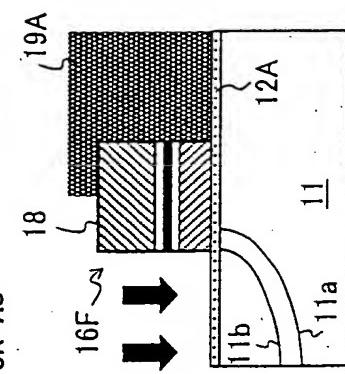


FIG. 1K
PRIOR ART

LOW-VOLTAGE
OPERATION
TRANSISTOR B

HIGH-VOLTAGE
OPERATION
TRANSISTOR C

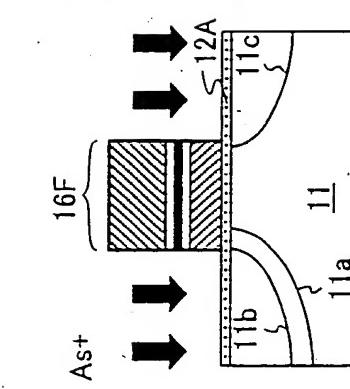
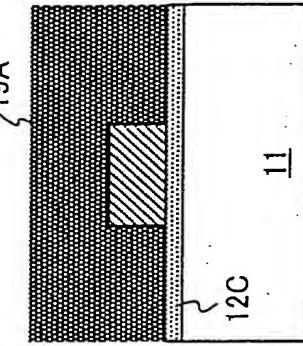
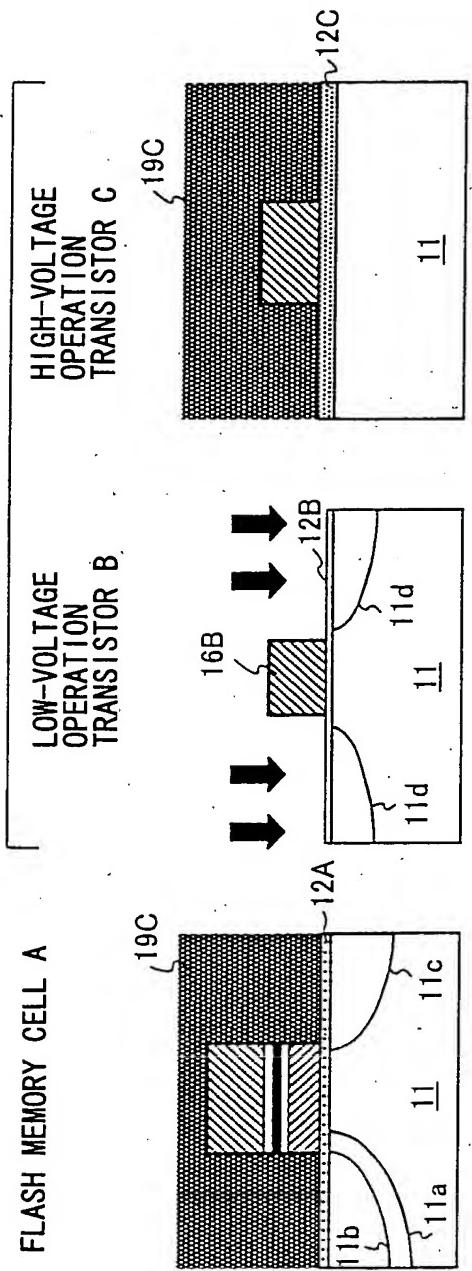
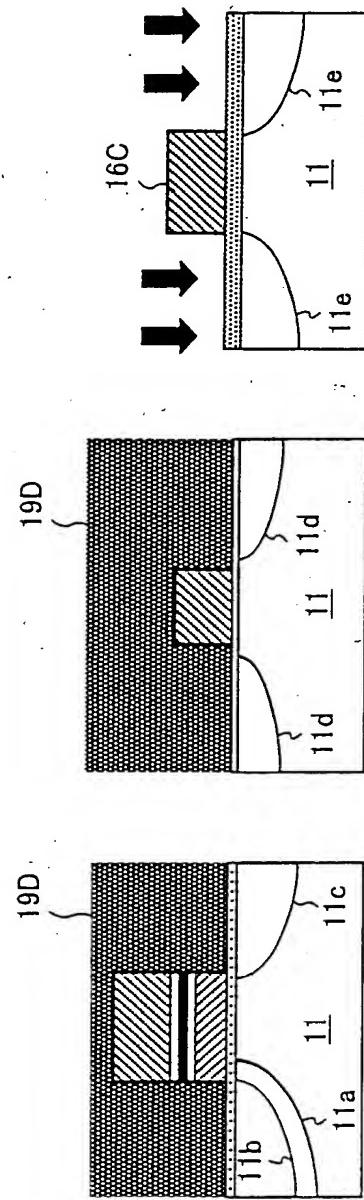


FIG. 1L
PRIOR ART

LOGIC CIRCUIT DEVICES



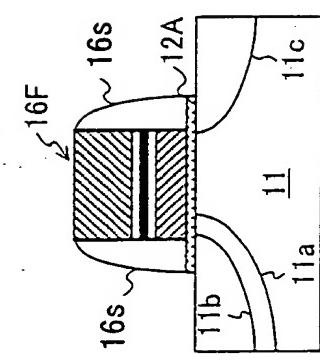
**FIG. 1M
PRIOR ART**



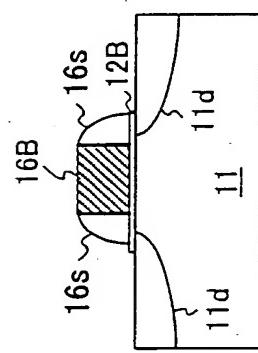
**FIG. 1N
PRIOR ART**

LOGIC CIRCUIT DEVICES

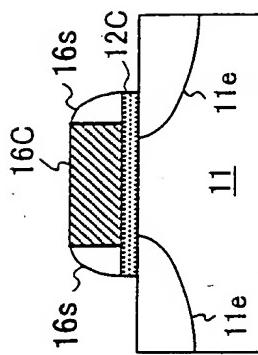
FLASH MEMORY CELL A



LOW-VOLTAGE OPERATION TRANSISTOR B

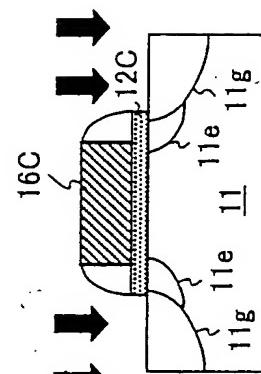
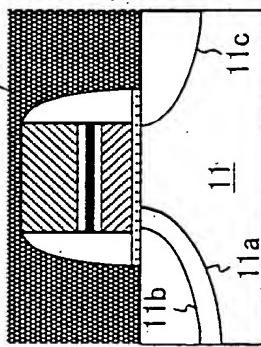


HIGH-VOLTAGE OPERATION TRANSISTOR C



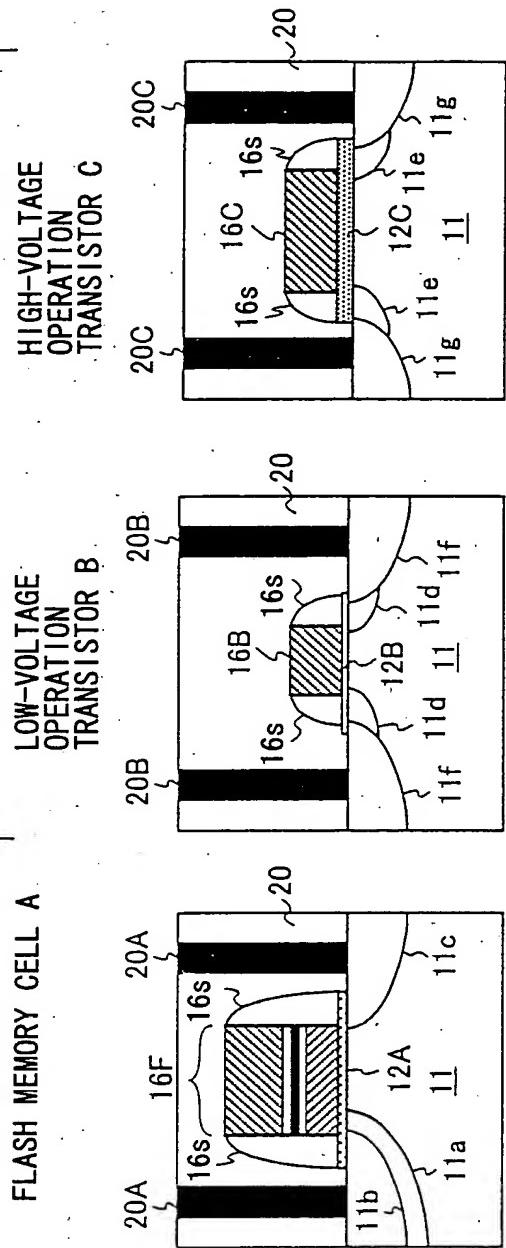
**FIG. 10
PRIOR ART**

19E



**FIG. 1P
PRIOR ART**

FIG. 1Q
PRIOR ART



FLASH MEMORY CELL

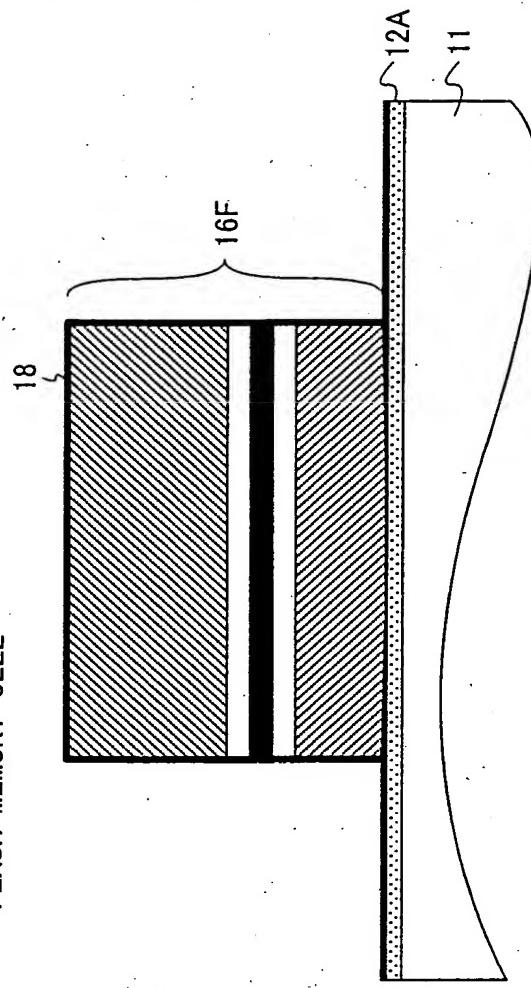


FIG. 2A
PRIOR ART

LOW-VOLTAGE OPERATION TRANSISTOR

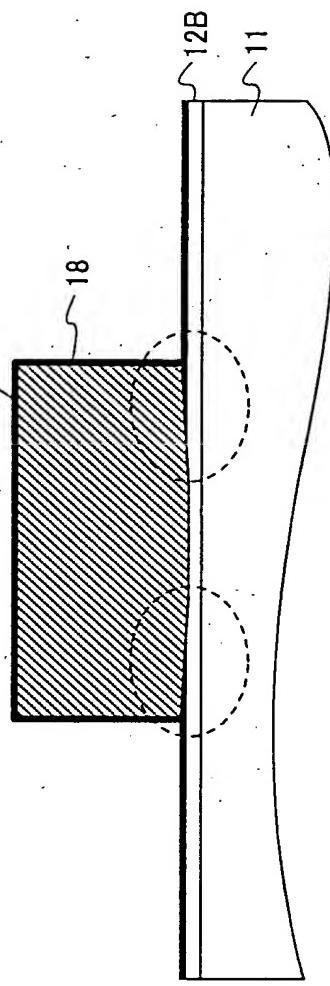


FIG. 2B
PRIOR ART

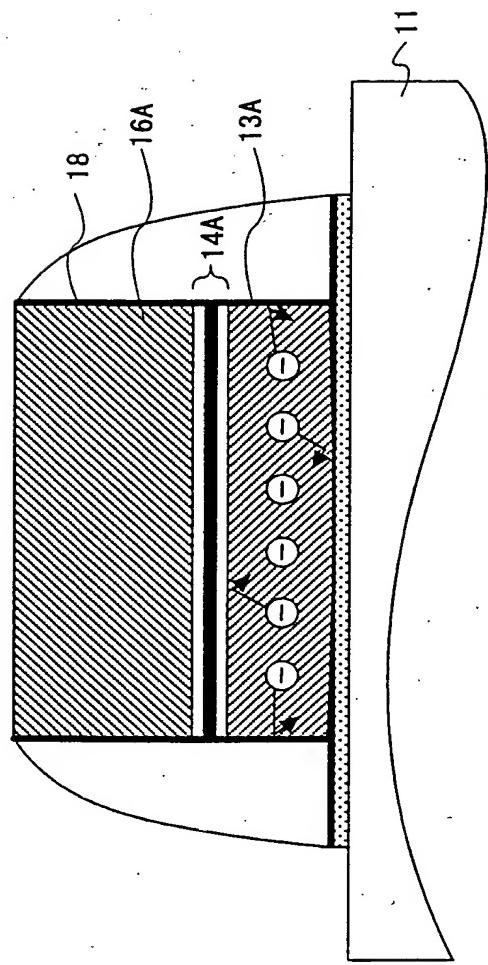


FIG. 3A
PRIOR ART

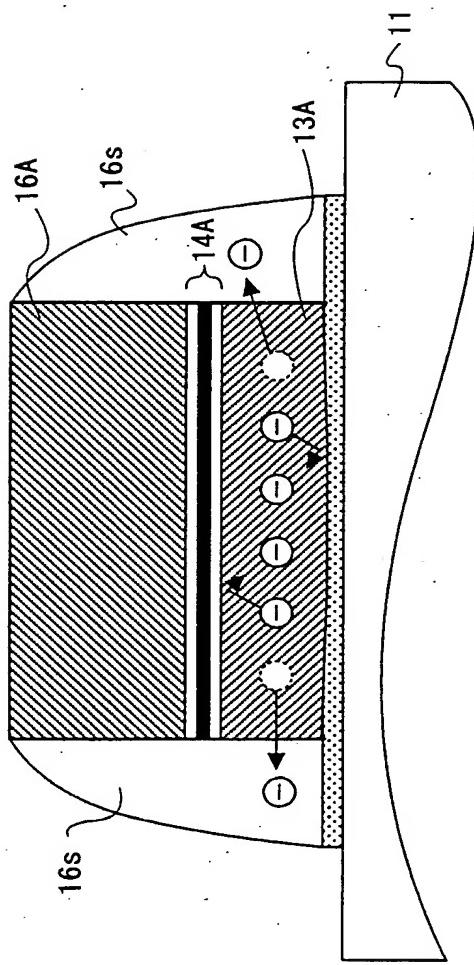
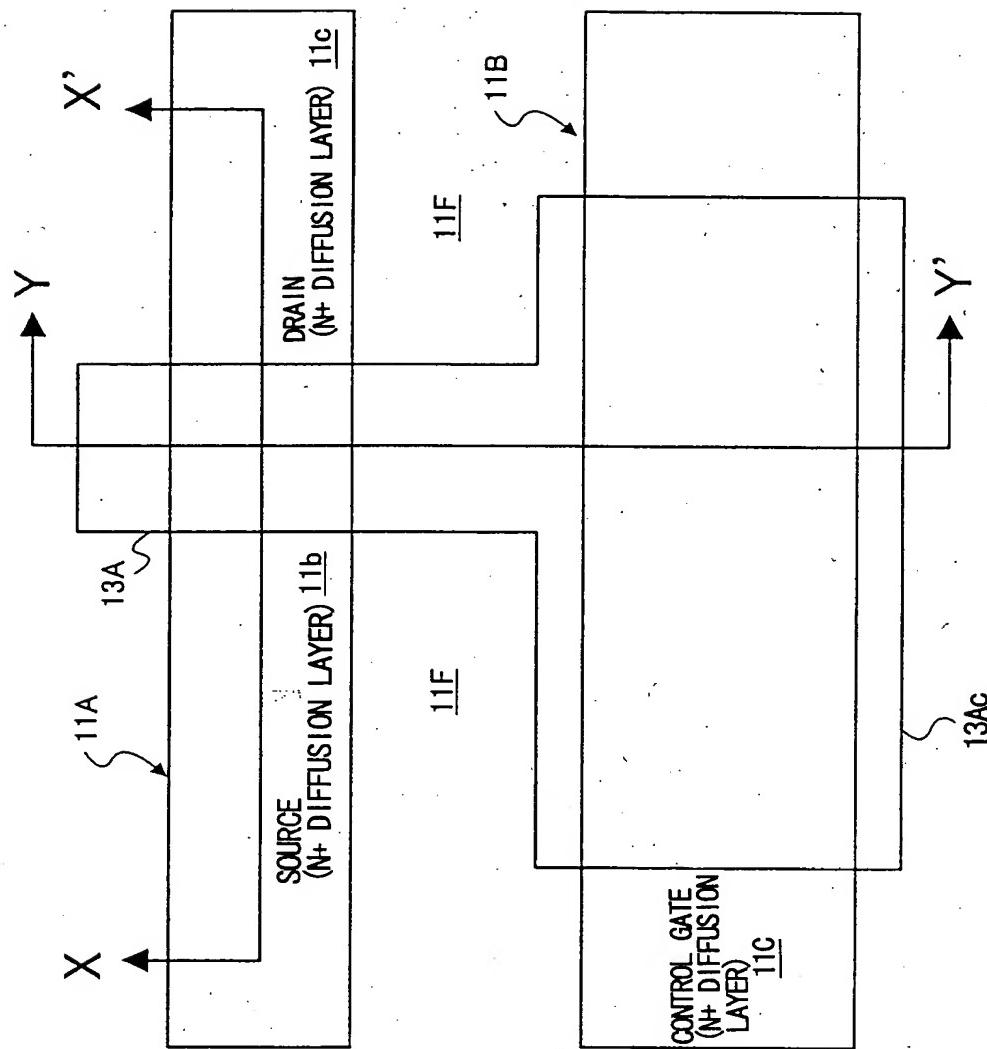


FIG. 3B
PRIOR ART

FIG. 4 RELATED ART



X-X'

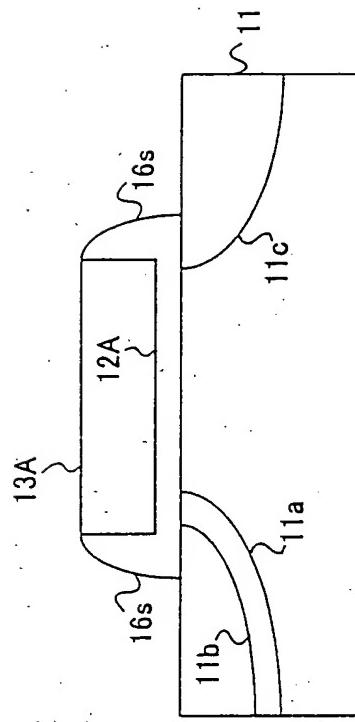


FIG. 5A
RELATED ART

Y-Y'

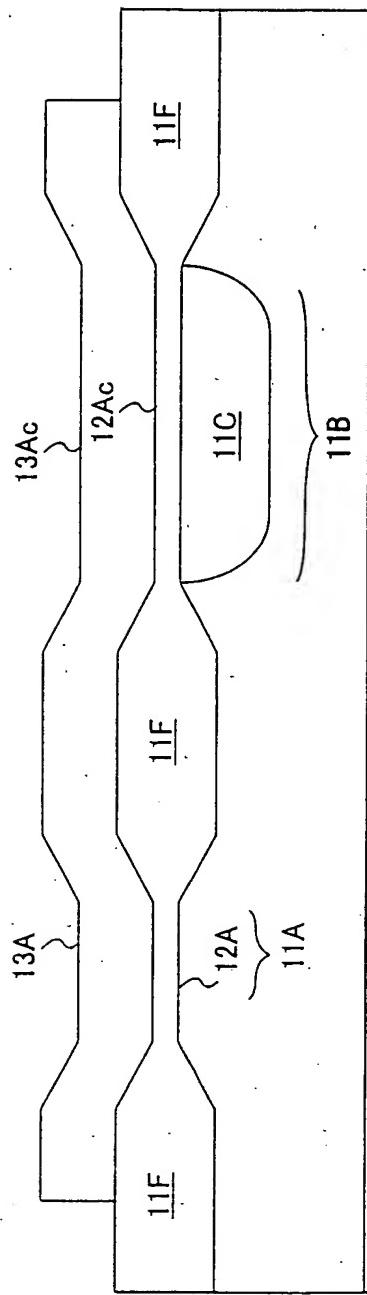


FIG. 5B
RELATED ART

5
11

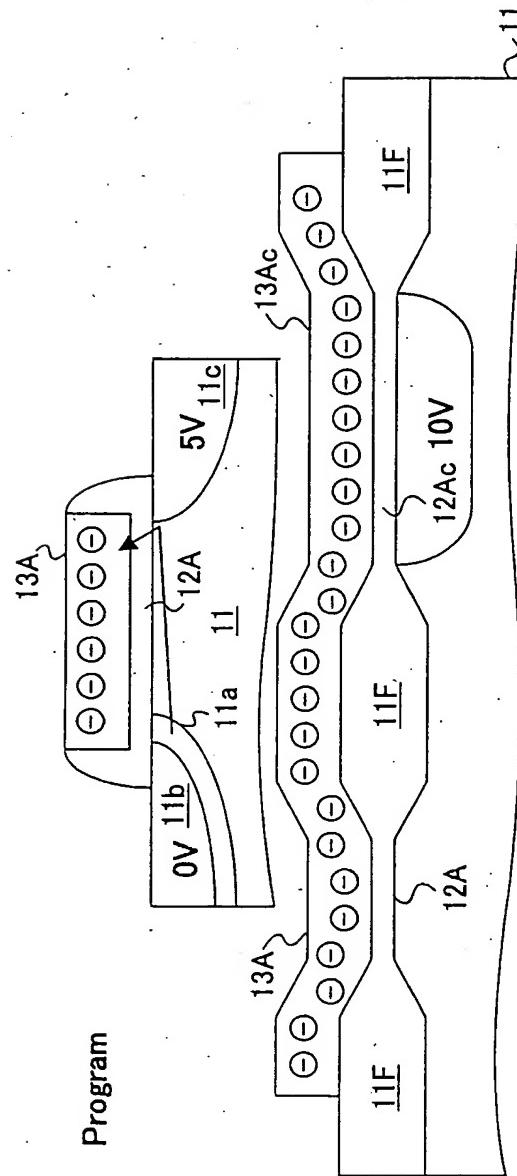


FIG. 6A
RELATED ART

FIG. 6B
RELATED ART

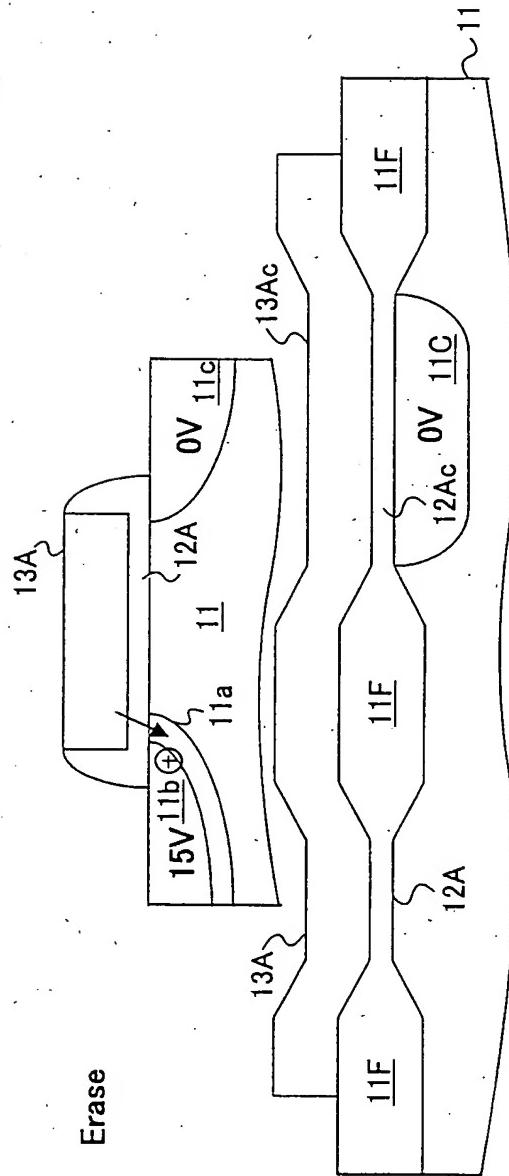
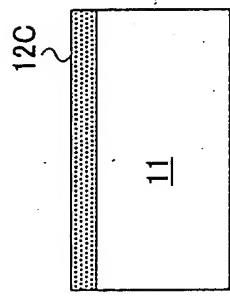


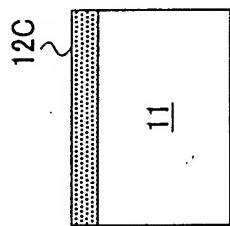
FIG. 6C RELATED ART

FIG. 6D RELATED ART

FLASH MEMORY CELL A



LOW-VOLTAGE
OPERATION
TRANSISTOR B



HIGH-VOLTAGE
OPERATION
TRANSISTOR C

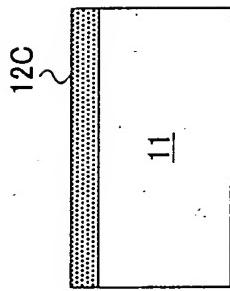
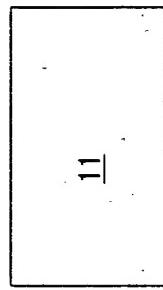
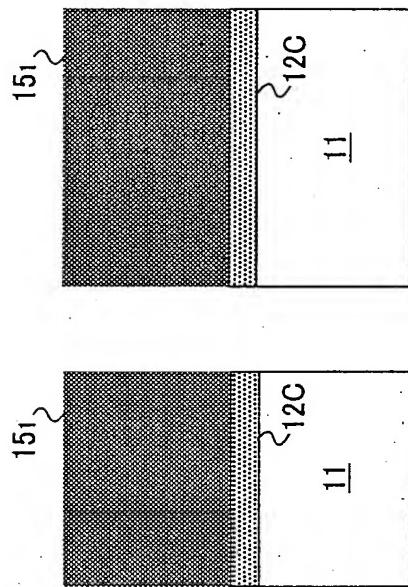
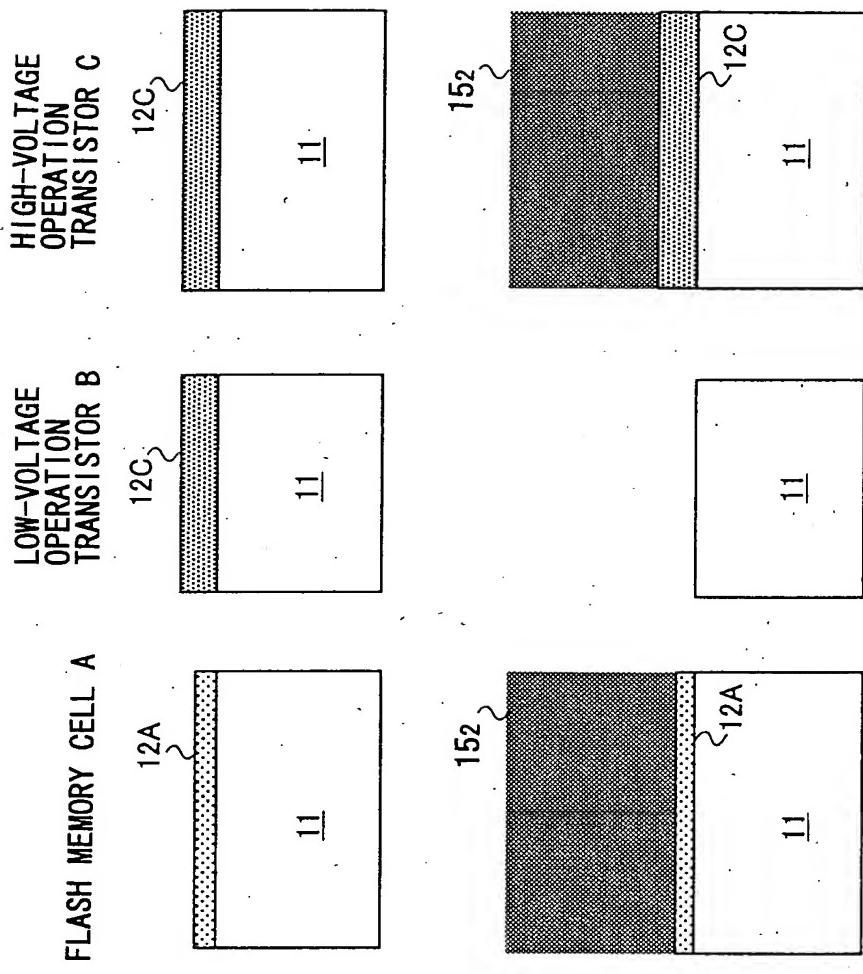


FIG. 7A
RELATED ART

FIG. 7B
RELATED ART





**FIG. 7C
RELATED ART**

**FIG. 7D
RELATED ART**

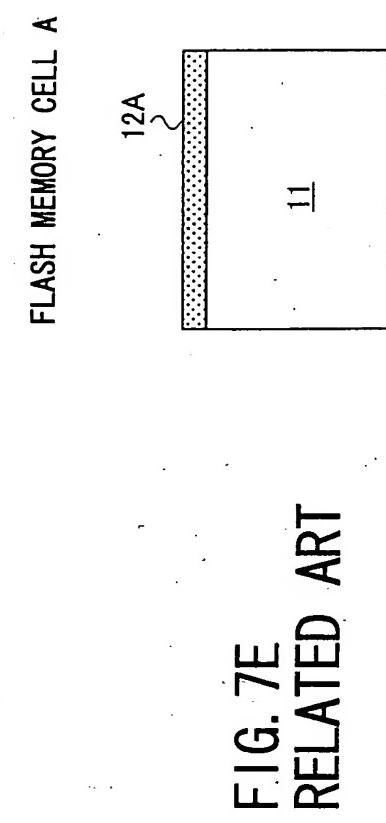


FIG. 7E
RELATED ART

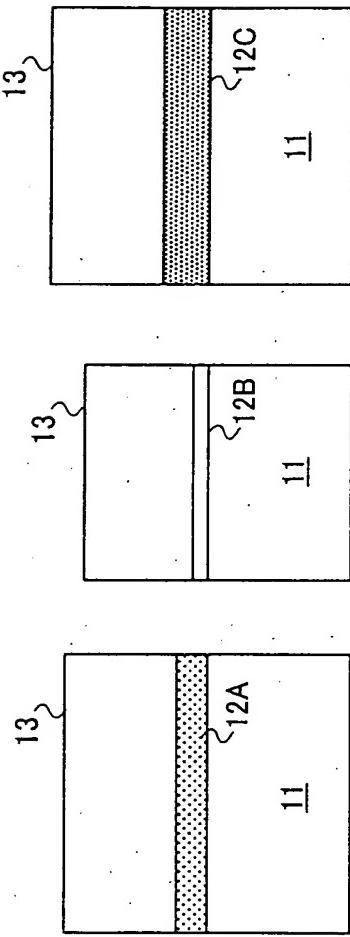
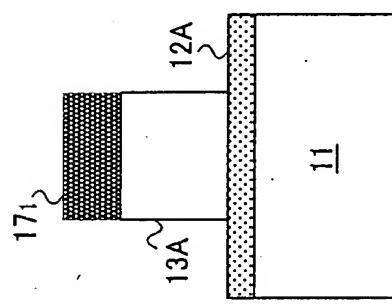
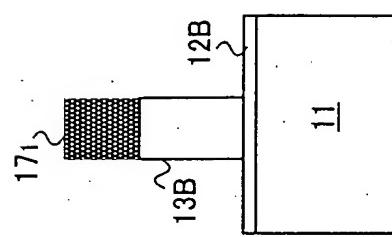


FIG. 7F
RELATED ART

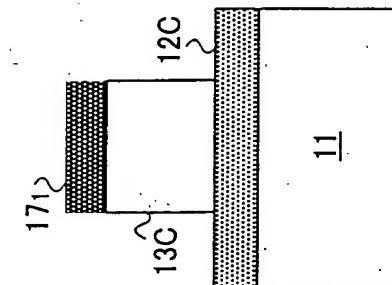
FLASH MEMORY CELL A



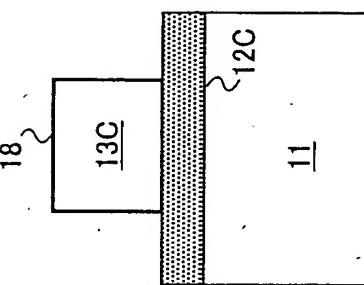
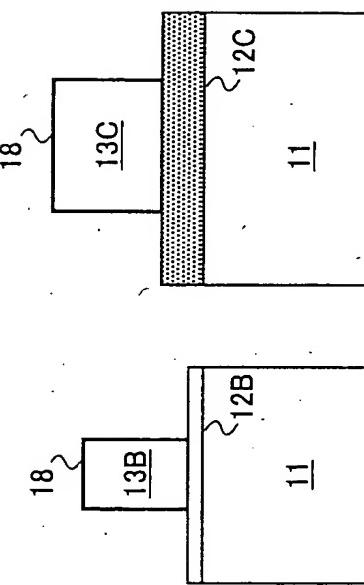
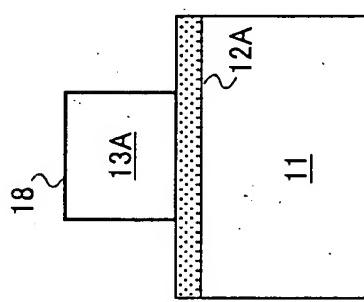
**LOW-VOLTAGE
OPERATION
TRANSISTOR B**



**HIGH-VOLTAGE
OPERATION
TRANSISTOR C**



**FIG. 7G
RELATED ART**



**FIG. 7H
RELATED ART**

FLASH MEMORY CELL A
LOW-VOLTAGE
OPERATION
TRANSISTOR B
HIGH-VOLTAGE
OPERATION
TRANSISTOR C

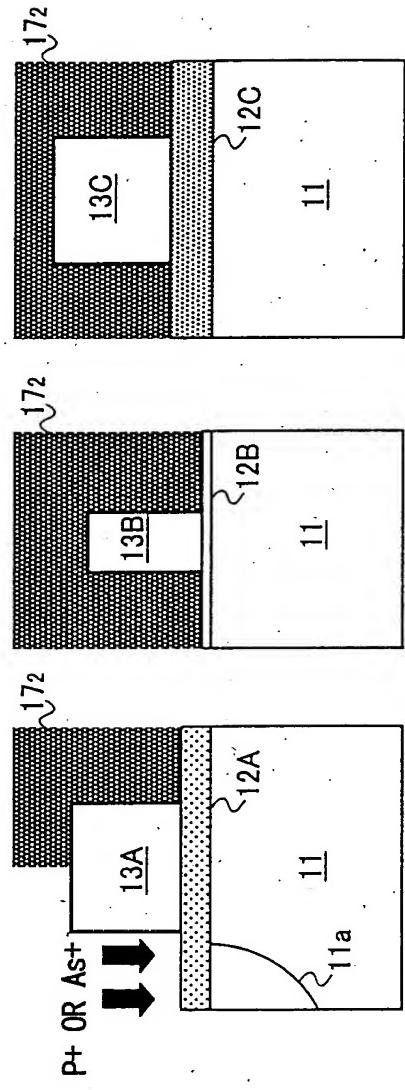


FIG. 7I
RELATED ART

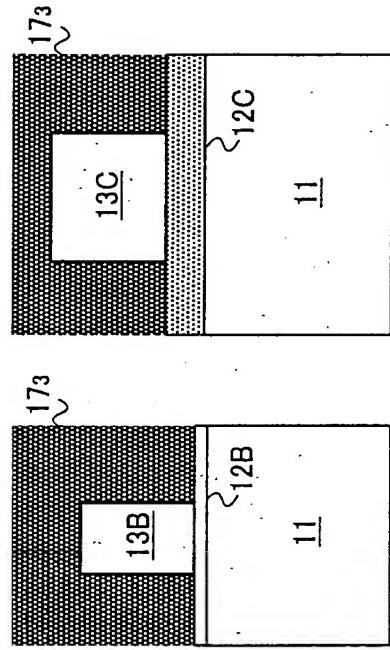
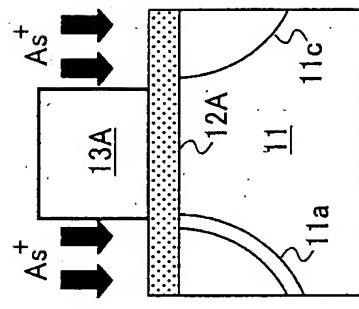
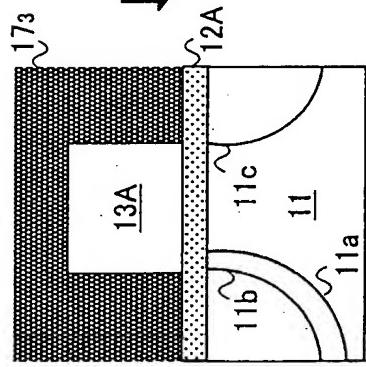


FIG. 7J
RELATED ART

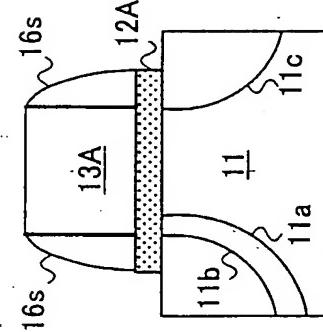
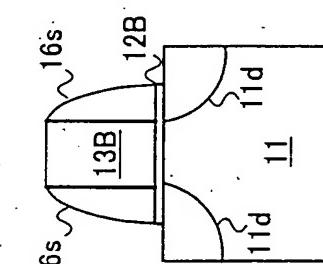
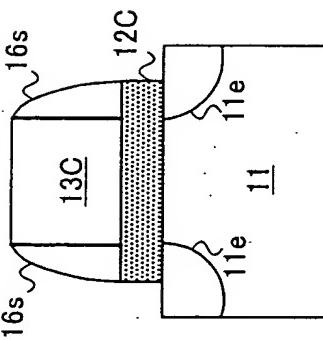
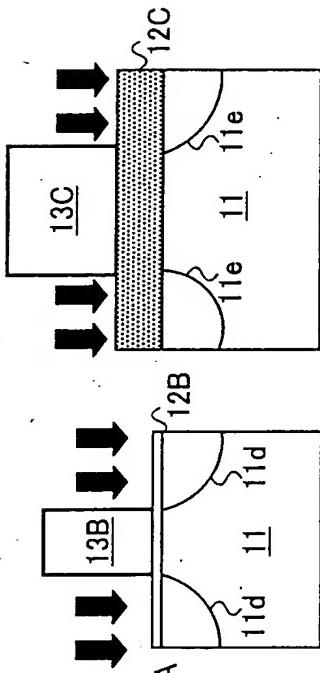


FLASH MEMORY CELL A

**HIGH-VOLTAGE
OPERATION
TRANSISTOR C**



**FIG. 7K
RELATED ART**



**FIG. 7L
RELATED ART**

FLASH MEMORY CELL A

174

LOW-VOLTAGE
OPERATION
TRANSISTOR B

TRANSISTOR C

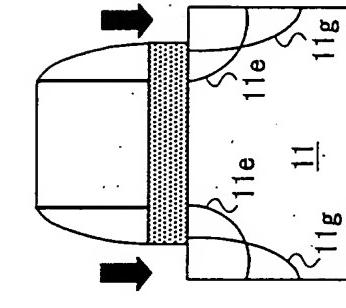
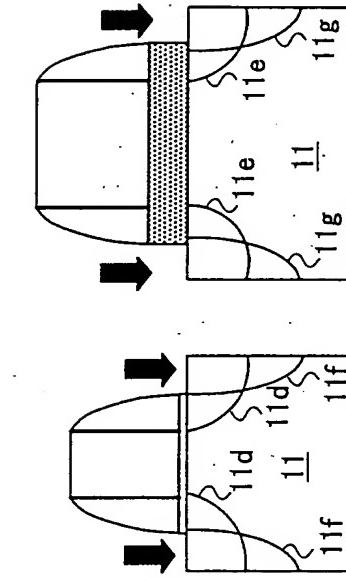
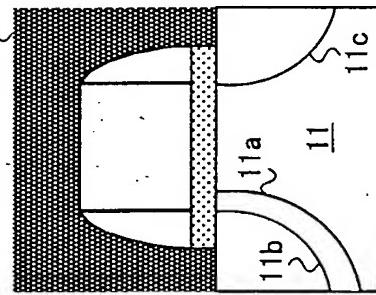


FIG. 7M
RELATED ART

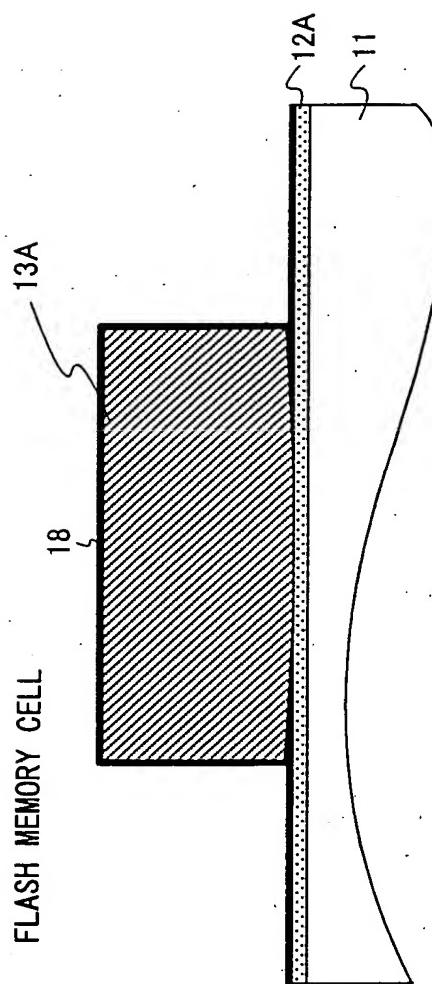


FIG. 8A
RELATED ART

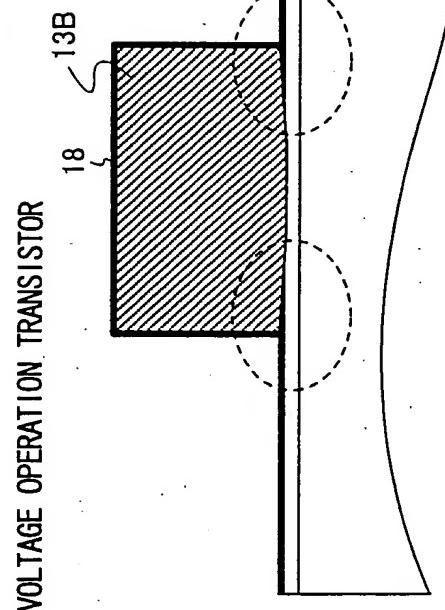


FIG. 8B
RELATED ART

LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A

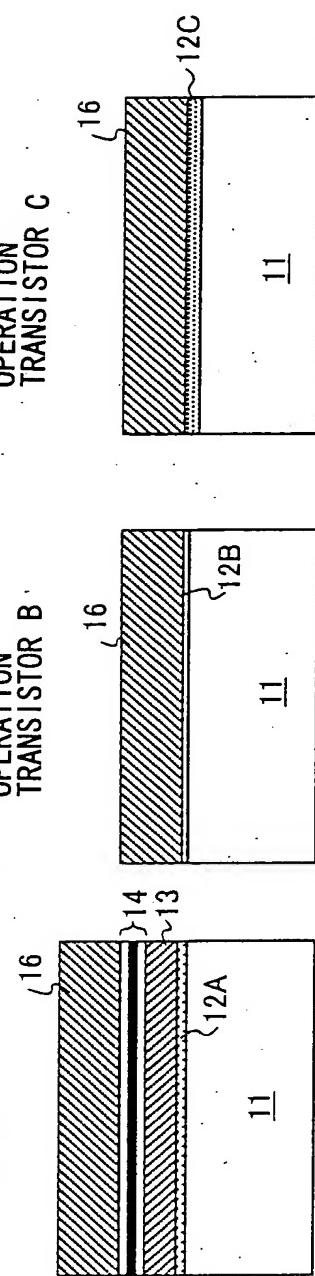
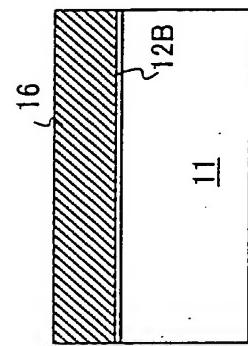


FIG. 9A

LOW-VOLTAGE
OPERATION
TRANSISTOR B



HIGH-VOLTAGE
OPERATION
TRANSISTOR C

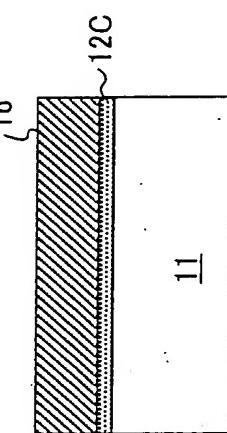
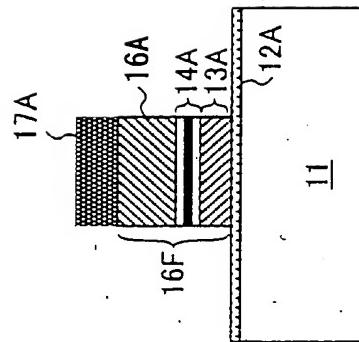
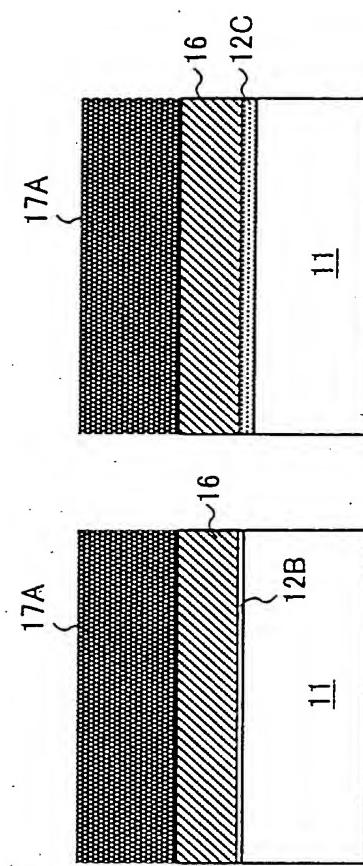


FIG. 9B



LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A

As+ OR P+ 16F 18

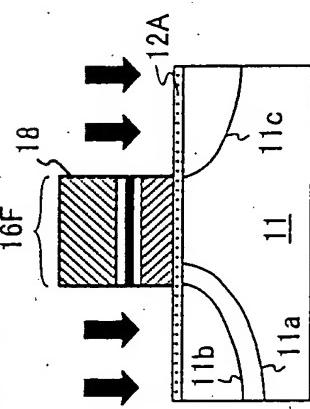


FIG. 9C

**HIGH-VOLTAGE
OPERATION
TRANSISTOR C**

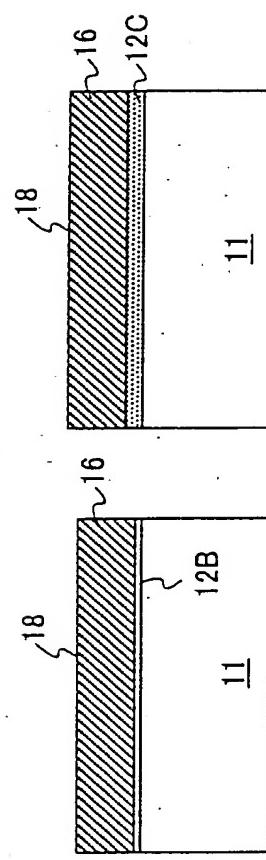


FIG. 9C

**LOW-VOLTAGE
OPERATION
TRANSISTOR B**

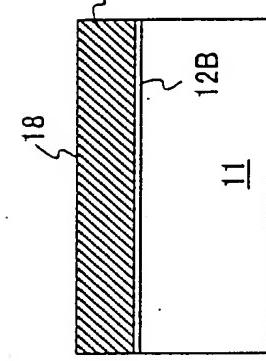


FIG. 9C

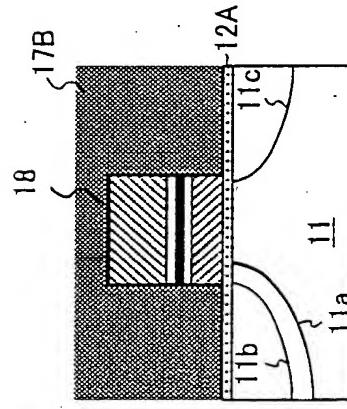
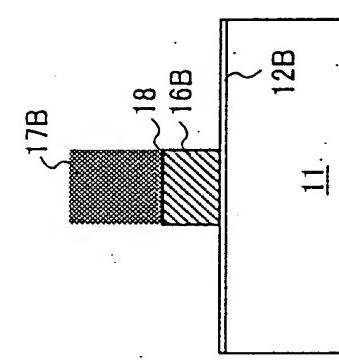
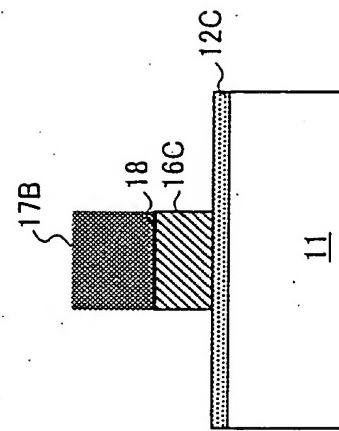
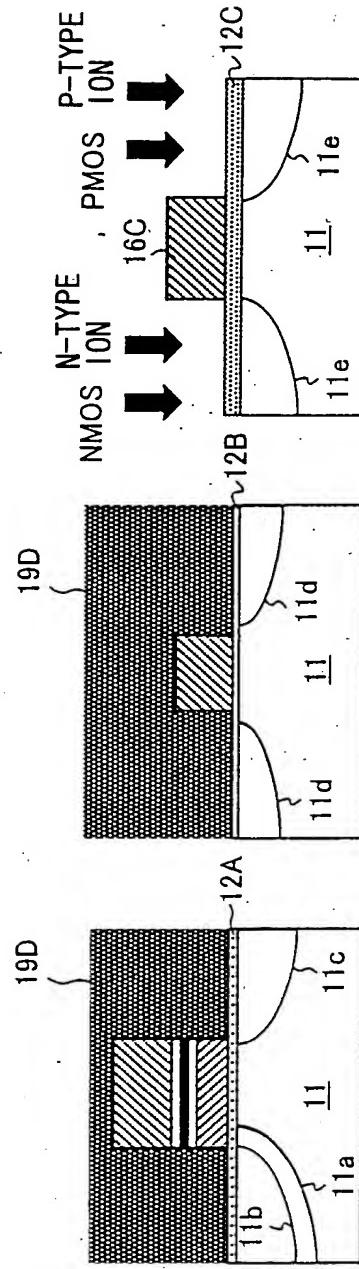
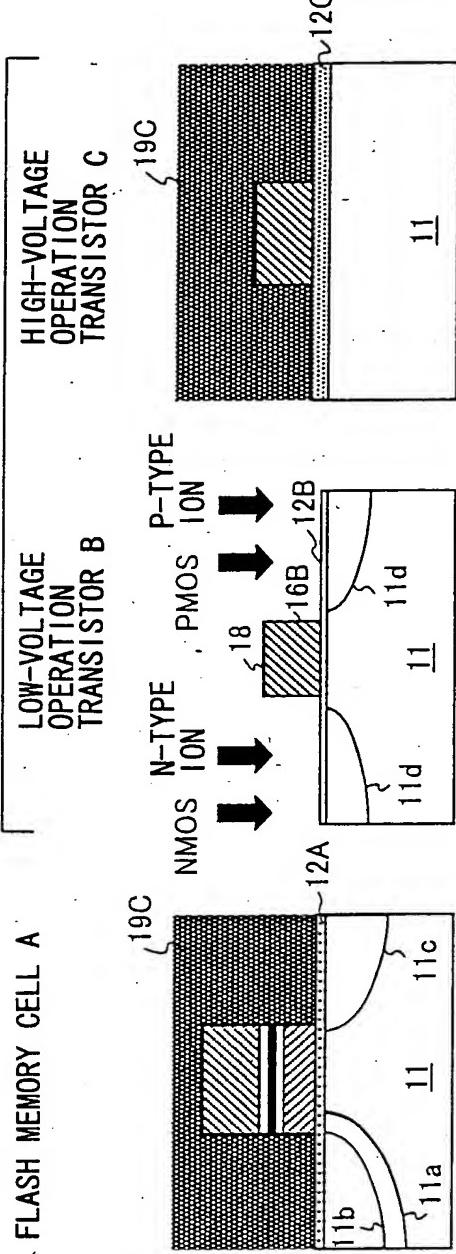


FIG. 9D

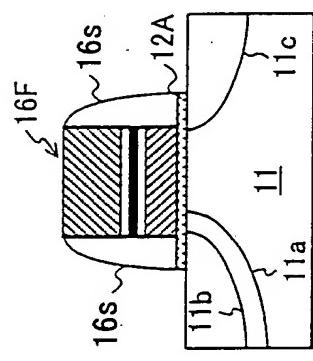


LOGIC CIRCUIT DEVICES

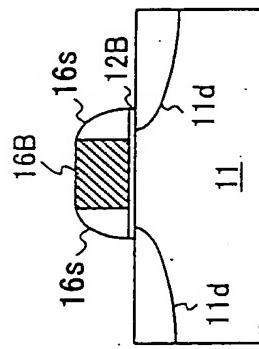


LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A



LOW-VOLTAGE
OPERATION
TRANSISTOR B



HIGH-VOLTAGE
OPERATION
TRANSISTOR C

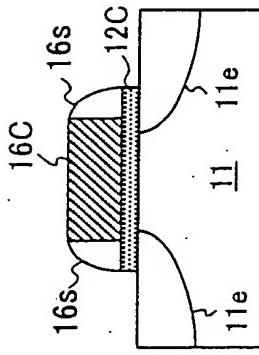


FIG. 9G

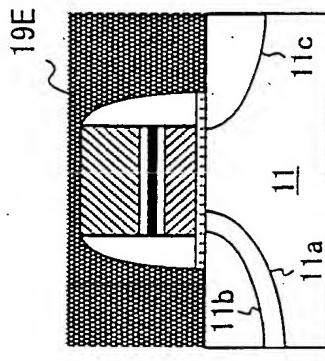
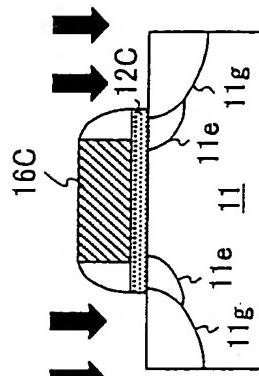
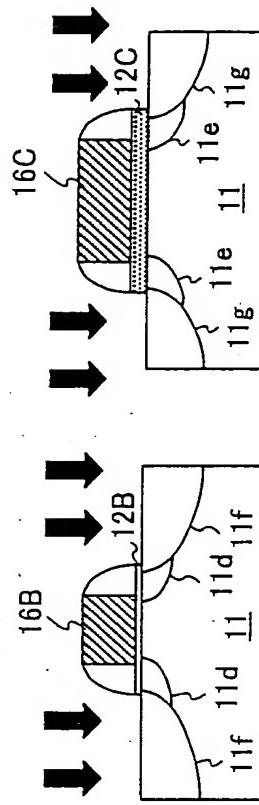


FIG. 9H



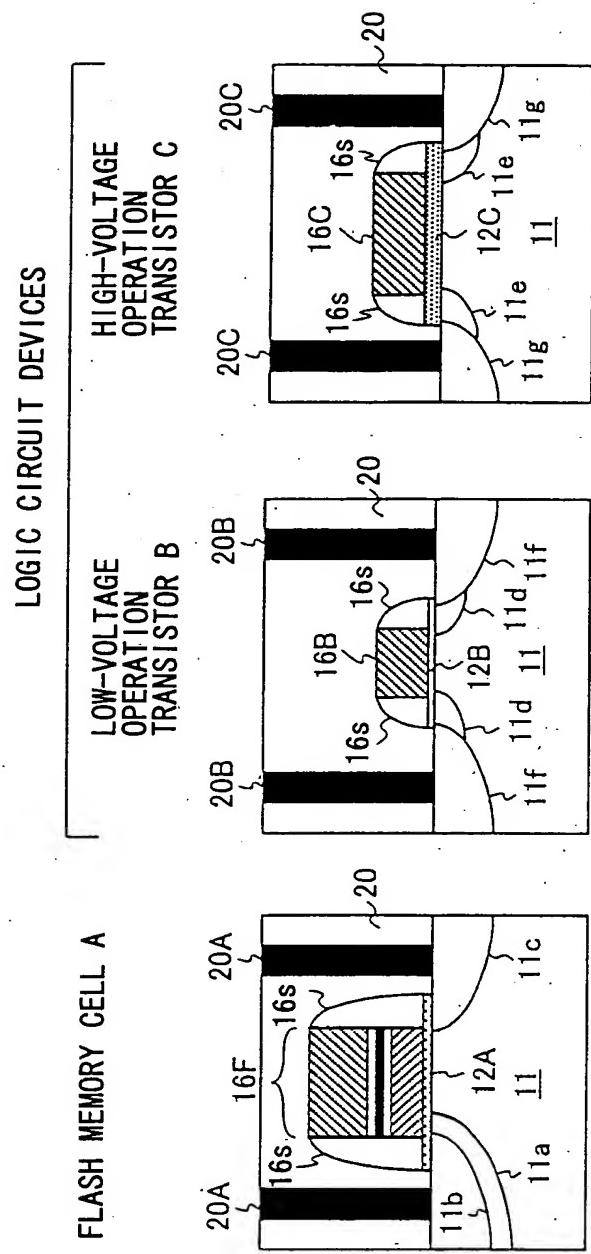


FIG. 91

FLASH MEMORY CELL

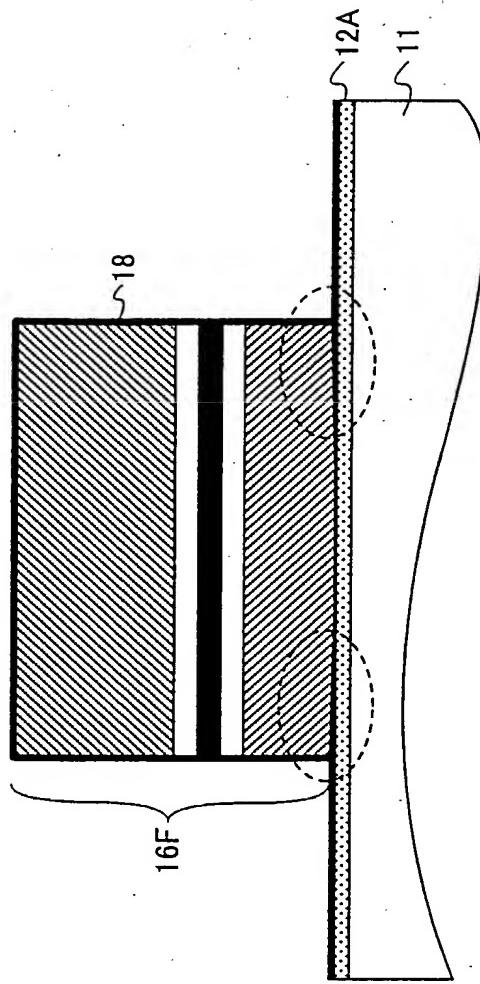


FIG. 10A

LOW-VOLTAGE OPERATION TRANSISTOR

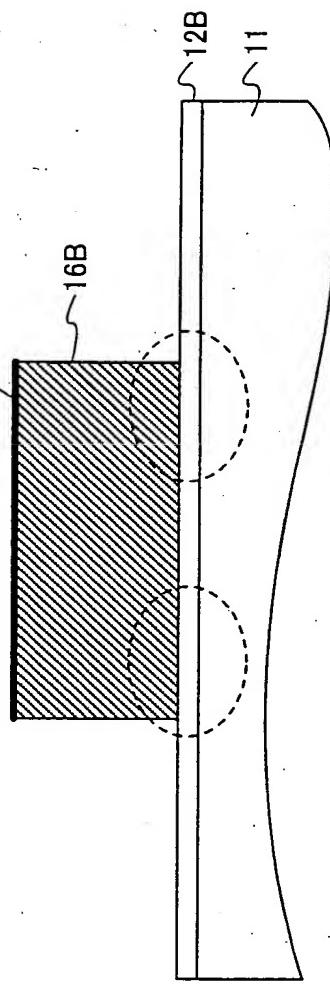


FIG. 10B

FLASH MEMORY CELL A ↓ ↓ ↓ ↓ ↓

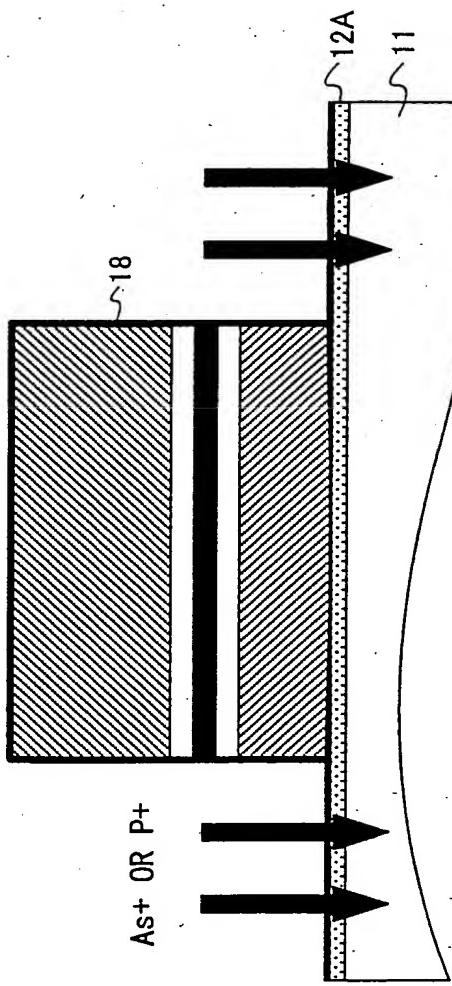


FIG. 11A

LOW-VOLTAGE OPERATION TRANSISTOR B

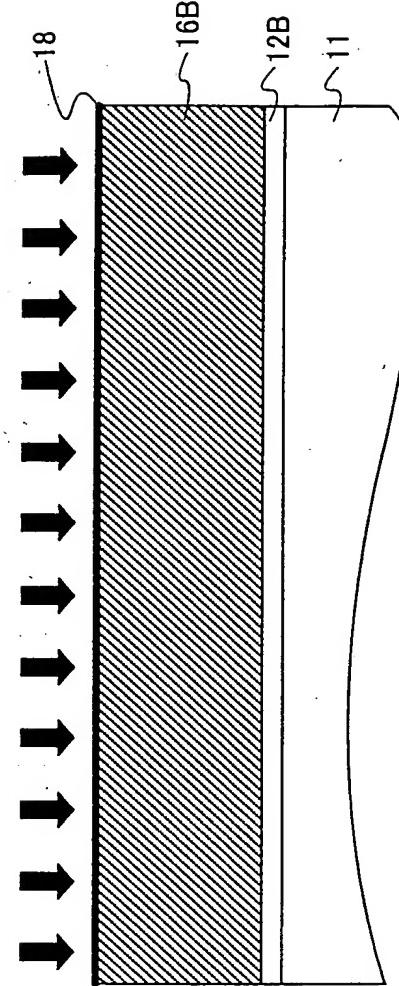


FIG. 11B

LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A

LOW-VOLTAGE
OPERATION
TRANSISTOR B

12A

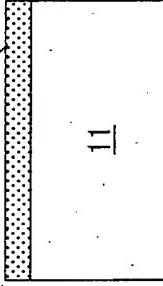


FIG. 12A

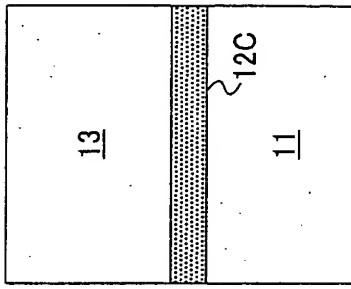
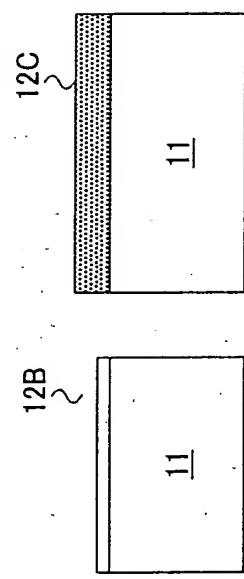
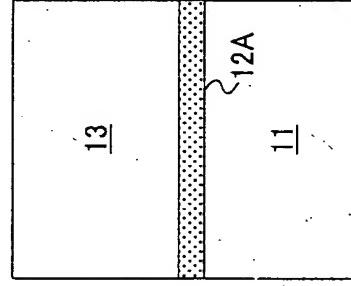
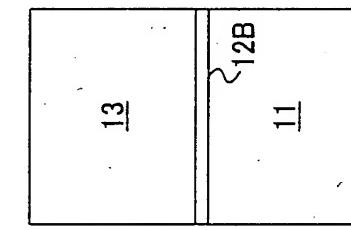


FIG. 12B



LOGIC CIRCUIT DEVICES

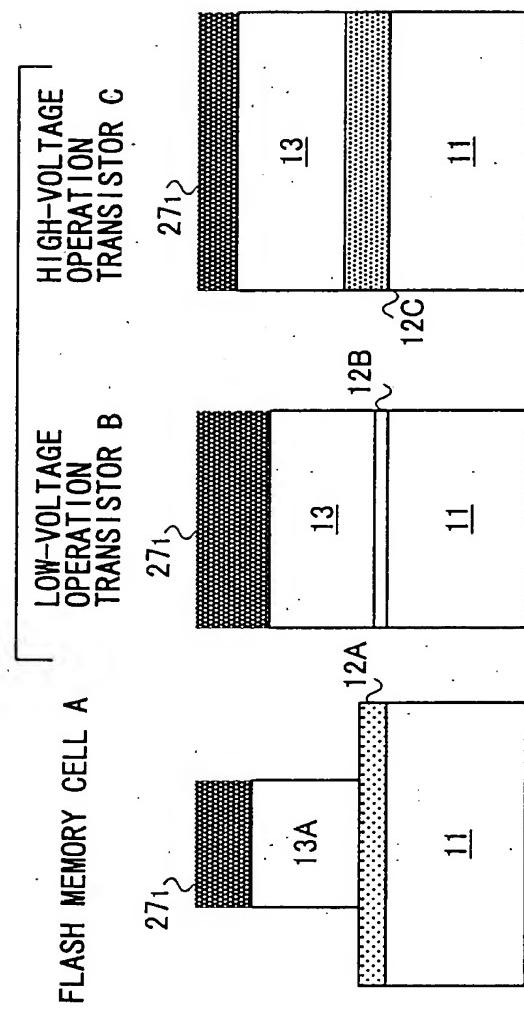


FIG. 12C

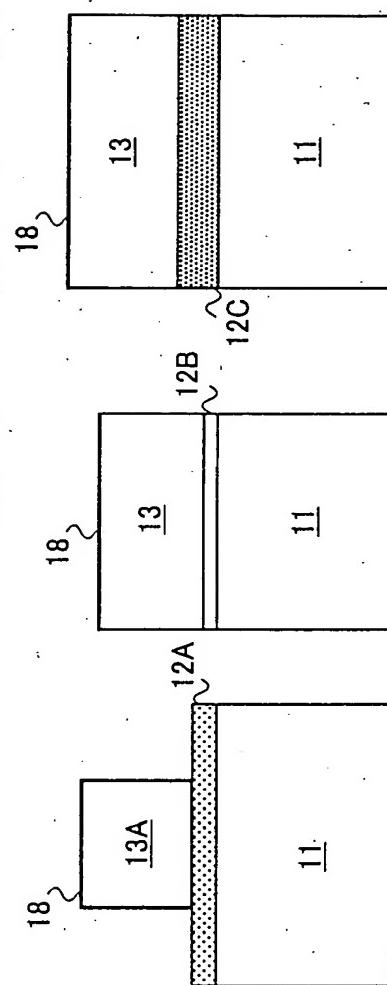


FIG. 12D

LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A

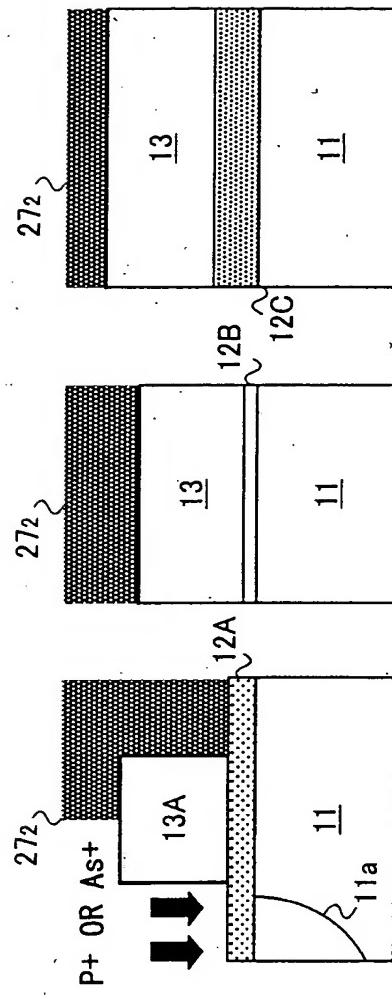


FIG. 12E

LOW-VOLTAGE OPERATION TRANSISTOR B

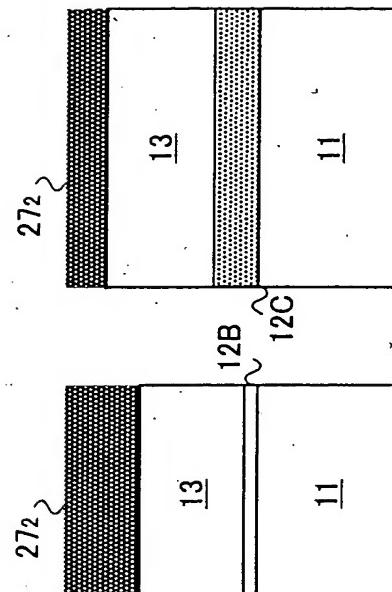


FIG. 12E

HIGH-VOLTAGE OPERATION TRANSISTOR C

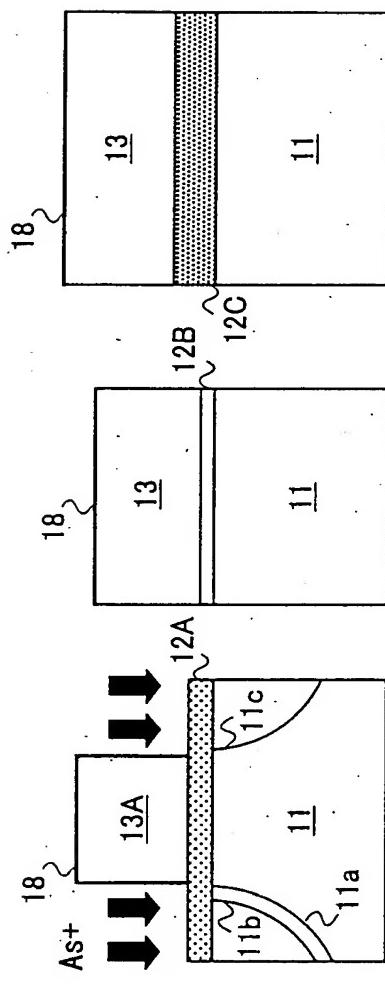
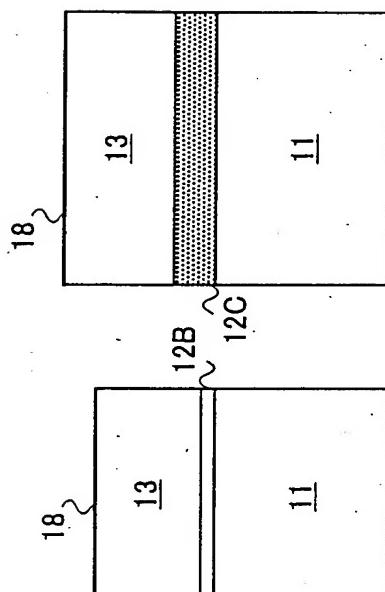


FIG. 12F



LOGIC CIRCUIT DEVICES

FIG. 12G

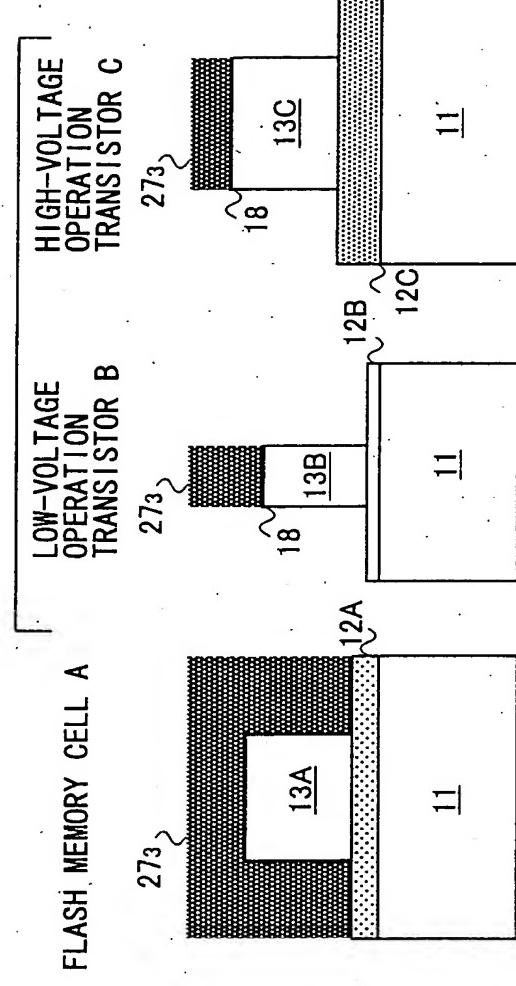


FIG. 12G

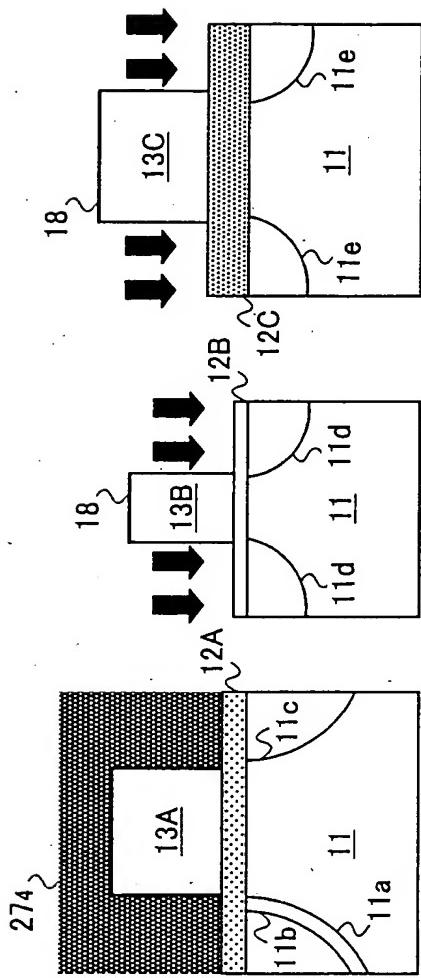
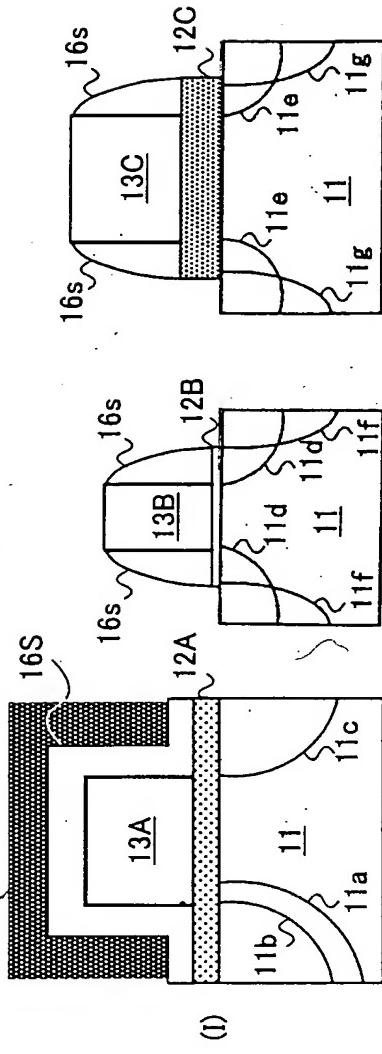


FIG. 12H

LOGIC CIRCUIT DEVICES

FLASH MEMORY CELL A
LOW-VOLTAGE OPERATION
TRANSISTOR B
HIGH-VOLTAGE OPERATION
TRANSISTOR C

275,



(I)

FIG. 121

FLASH MEMORY CELL

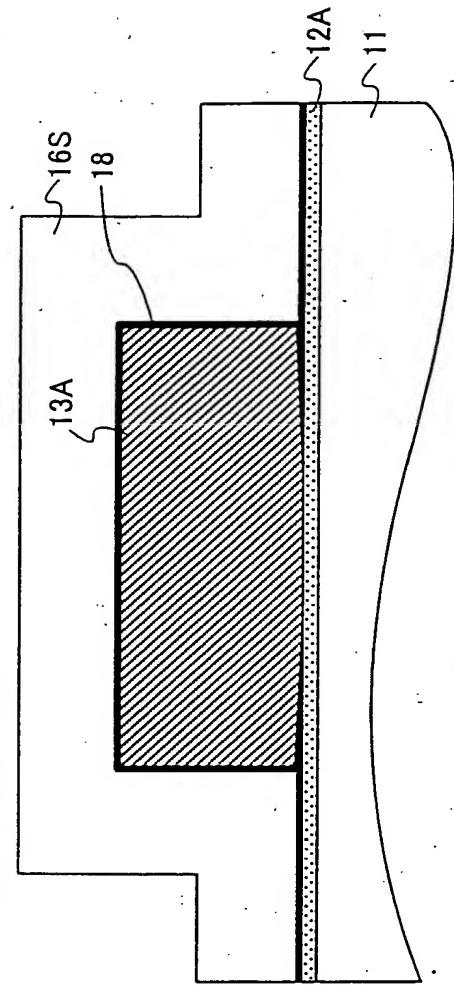


FIG. 13A

LOW-VOLTAGE OPERATION TRANSISTOR

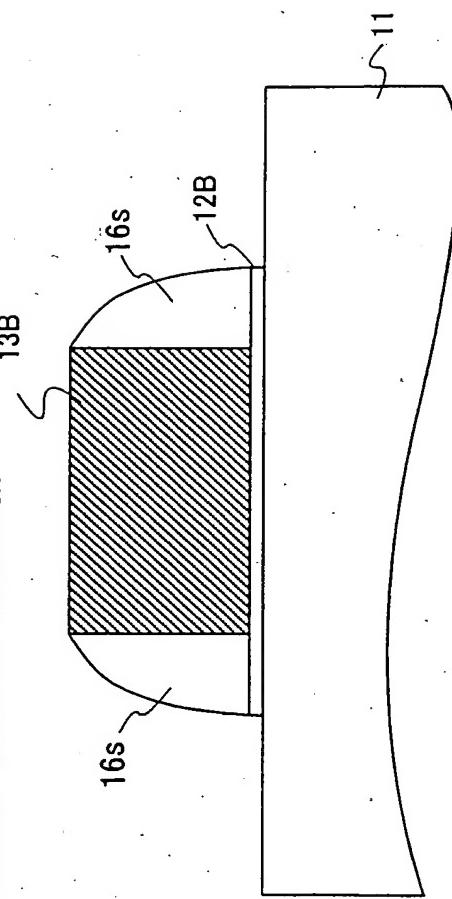


FIG. 13B